Abstract

A honeycomb structure includes a plurality of honeycomb segments partitioned by partition walls and having a plurality of circulation holes penetrating in one axial direction; and a bonding layer existing between the adjacent honeycomb segments for bonding the plurality of honeycomb segments. The bonding layer is formed by use of a bonding material including oxide fibers which satisfy the following relational expression.

$$0.5 \leq L \times (W / D) / 100 \leq 8$$

L is an average length (μm) of the oxide fibers in a longitudinal direction, D is specific gravity (g/cm^3) of the oxide fibers, and W is mass percentage of content (% by mass) of the oxide fibers in the entire bonding material.